

**YUKON
ENERGY**



YUKON ENERGY CORPORATION

20-YEAR RESOURCE PLAN: 2006-2025

RESOURCE PLAN UPDATE

November, 2006

INTRODUCTION

To ensure all relevant updated information on projects where there are ongoing planning activities is available to the Board, Yukon Energy has prepared this update. The update is organized into four sections:

- Summary of Updates
- Marsh Lake Fall/Winter Storage Project
- Mirrlees Life Extension Project
- Carmacks-Stewart Transmission Project

1.0 SUMMARY OF UPDATES

The following is a summary of the ongoing planning activities undertaken since the Resource Plan was filed in relation to three of the near term projects proposed in the Resource Plan.

- **Marsh Lake Fall/Winter Storage Project:** Since the Resource Plan was filed with the Board, Yukon Energy has participated with Marsh Lake residents and environmental consultants in initial investigations of the issues related to the project. As a result of that investigation, it has become clear that the Marsh Lake project will not in any likelihood be able to proceed through the licencing process in the very near term, as originally intended. Given the above assessment Yukon Energy's Resource Plan no longer includes any plans to pursue the Marsh Lake Fall/Winter Storage Project.
- **Mirrlees Life Extension Project:** Yukon Energy's investigations into the technical feasibility of the Mirrlees Life Extension have continued to confirm that despite obvious challenges, the project remains feasible. Yukon Energy has now completed partial disassembly of key components of WD3 for inspection, and observations indicate no conditions that would be fatal to the project. Further definition of the expected parts scope (and related project budgets) is now underway.

In addition as a result of continuing positive results from investigation into the three Whitehorse Mirrlees, Yukon Energy has assessed the potential for rehabilitating a previously retired Mirrlees KV-16 unit at its Faro diesel plant. A Faro option offers two key characteristics that make it attractive as an early capacity addition. Firstly it adds new capacity (5 MW) to the system and thereby aids in addressing the shortfalls that arise due to Yukon Energy's decision not to proceed with Marsh Lake Fall/Winter Storage, and secondly, no existing units must be taken off-line to allow rehabilitation work to proceed (unlike WD3, which is required capacity on the system, cannot be taken off-line for rehabilitation work except in low load periods such as summer). This Faro Mirrlees unit has now been partially disassembled similar to WD3, and no major issues have been identified.

Due to the confirmed technical feasibility as well as the benefits of rehabilitating the retired Mirrlees at Faro, Yukon Energy expects to proceed with this (or an equivalent) Faro focused diesel project in 2007 for 5 MW of added firm capacity.¹

- **Carmacks-Stewart Project:** Since the June filing, Yukon Energy has carried out extensive consultations with the NTFN and others and has filed its YESAB application which includes the selected route for the proposed transmission line. Further, a number of very positive developments have occurred in relation to the Minto mine. The mine owners have now received the \$85 million in debt financing required to complete the mine which is now more than one third built. It is scheduled to be completed and in production in the second quarter of 2007. Although a PPA has not yet been concluded with Minto, Yukon Energy is hopeful it will be completed soon.

Western Copper has also recently reconfirmed its interest in reaching agreement with Yukon Energy for supply of grid power and negotiations are expected to begin shortly.

Given these developments Yukon Energy is proposing the construction of Stage 1, i.e. 138 kV line from Carmacks to Pelly Crossing, as soon as the necessary regulatory approvals are obtained and a PPA is finalized with the Minto mine which results in material ratepayer benefits (over and above the cost of the line). Yukon Energy is confident this can be achieved assuming YDC contributes approximately \$5 million to the project (which amount represents the approximate value of increased payments to YDC under the FTN caused by the increased loads on the WAF system).

2.0 MARSH LAKE FALL/WINTER STORAGE PROJECT

Yukon Energy has decided not to proceed with the Marsh Lake Fall/Winter Storage project. Meetings with Marsh Lake residents and initial environmental scans have indicated a clear inability to have the project licenced in the very near term due to specific detailed concerns. Among the concerns noted were specific issues related to shoreline erosion, high fall water level impacts in low-lying areas, and related impacts on the built environment. Although there has been no detailed assessment of these issues, they are not items that can be addressed in a short period of time. As the project cannot proceed in the very near term, one of the most appealing characteristics of the project is no longer available.

As an option to enhance the output of Whitehorse Rapids, Marsh Lake Fall/Winter Storage was considered to be a suitable first step towards overall plant enhancement as it was relatively modest (1.6 MW), required no new physical works, and was expected to be one that could be completed in the very near term due to no flooding above natural levels. Further WH Rapids plant enhancement options, such as enhanced upstream storage in other parts of the Southern Lakes area or unit upgrades such as re-running, would then be pursued as subsequent steps.

As Marsh Lake Fall/Winter Storage cannot now be pursued quickly as a near-term resource option, it is no longer suitably thought of as a first step in enhancing the Whitehorse Rapids output. Accordingly, Yukon Energy's updated Resource Plan no longer includes any plans to proceed with Marsh Lake Fall/Winter Storage today or in the future.

¹ Yukon Energy is also assessing the used diesel market to determine whether there are any comparable used units that would offer greater benefits to the system than the Faro Mirrlees at the same cost. For example, one such option being pursued is two used 2.8 MW EMD units which Yukon Energy's initial investigations indicate could be undertaken at a comparable cost to rehabilitation of the Faro Mirrlees. Depending on the outcome of Yukon Energy's due diligence, this option may be a better fit for the Faro plant in terms of unattended operation (Yukon Energy only maintains a part time operator in Faro) and peaking operation (EMD units are better suited to standby, quick startup and peaking use, and the Faro plant is not foreseen to be a baseloaded plant under any load forecast scenario).

Yukon Energy is continuing to assess various options to enhance the Whitehorse Rapids output as described in the Resource Plan. The work at this point is focused primarily on river ice studies, as well as a review of other upstream storage options. These other enhancement options are not in an advanced enough stage of study to be available as near-term resources.

3.0 MIRRLEES LIFE EXTENSION PROJECT

Since the filing of the IRs Yukon Energy has proceeding with planning for the Mirrlees Life Extension Project at Whitehorse. This includes assessing the scope of work, determining expected parts requirements and scheduling the overhaul activities. As a result of this continuing assessment and planning, Yukon Energy has continued to confirm the capability to complete the Life Extension project on the Whitehorse Mirrlees.

The continuing investigation has also highlighted a resource option previously considered to not be available to Yukon Energy. As noted in YUB-YEC-2-10(f), there is a fourth Yukon Energy Mirrlees unit at Faro that was previously retired. However, as a result of investigations related to this unit, Yukon Energy can now confirm that the Faro Mirrlees (at 5 MW) is a suitable candidate for rehabilitation consistent with the Whitehorse Mirrlees. In addition, there are major potential benefits that arise by undertaking a Faro focused option first (in 2007) with the Whitehorse Mirrlees units to follow (in 2008, 2009 and 2010²). There are two clear benefits of proceeding first with the project at Faro compared to the Whitehorse units:

1. **New Capacity:** A Faro focused project brings to the system on the order of 5 MW compared to the current available capacity. In contrast, overhauling WD3 in 2007 would only secure less than 1 MW of new capacity compared to today (the main benefit is from avoiding retirement, not new additions compared to today). As a result, a Faro-focused project in 2007 more than addresses lost capacity from the decision not to pursue the Marsh Lake Fall/Winter Storage project (1.6 MW in 2007), and provides the WAF system with some added near-term capacity cushion.
2. **Less Schedule Risk:** The Faro option relates to generation that is not now considered firm capacity to the WAF system. As a result, a Faro-focused project can be started at any time, including during winter, without impacting on the amount of backup capacity available on the system. In contrast, plans for overhauling WD3 were focused on the need to start the work only after winter peak loads had subsided, and ensuring completion by the time fall loads begin to grow to cold-weather levels. Given the range of normal uncertainties associated with the Life Extension project (particularly the range of parts that might be required, and associated delivery times), it is therefore preferable to begin with Faro. The Whitehorse focused project would then not be started until the added "cushion" noted above had been established. In addition, general plant related work on the Whitehorse plant can be started in 2007 so that by the time the first Whitehorse Mirrlees unit is being addressed in 2008 the scope of work is reduced and there is less schedule related risk than by having an overhaul occur in 2007 simultaneous with the general plant work.

The cost for the rehabilitation of the Faro Mirrlees unit, is expected to be in the range of the Whitehorse capacity noted in Supplemental Materials Tab 1 (at about \$0.457 million/MW, or a total of about \$2.3 million (2005\$)).

² Note however that WD3 was planned for retirement in 2007 so there would need to be a one year delay in dealing with this unit compared to the basic retirement scenario

The net capacity gains to the system as a result of the updated Mirrlees Life Extension Project is set out in Table 1.

Table 1: Impact of combining Faro Mirrlees rehabilitation with Whitehorse Mirrlees Life Extension project

Near Term Impact of Mirrlees Life Extension Project on WAF Capacity (MW)

	Mirrlees WD1, 2, and 3 and FD1 output under retirement scenario					Mirrlees WD1, 2, and 3 and FD1 output under Life Extension <i>as originally proposed in Resource Plan</i>						Mirrlees WD1, 2, and 3 and FD1 output under Life Extension <i>as updated</i>					
	WD1	WD2	WD3	FD1	Total	WD1	WD2	WD3	FD1	Total	difference *	WD1	WD2	WD3	FD1	Total	difference *
2006	3.0	4.2	4.2	0.0	11.4	3.0	4.2	4.2	0.0	11.4	0.0	3.0	4.2	4.2	0.0	11.4	0.0
2007	3.0	4.2	0.0	0.0	7.2	3.0	4.2	5.0	0.0	12.2	5.0	3.0	4.2	4.2	5.0	16.4	9.2
2008	3.0	4.2	0.0	0.0	7.2	3.0	5.0	5.0	0.0	13.0	5.8	3.0	4.2	5.0	5.0	17.2	10.0
2009	3.0	0.0	0.0	0.0	3.0	4.0	5.0	5.0	0.0	14.0	11.0	3.0	5.0	5.0	5.0	18.0	15.0
2010	3.0	0.0	0.0	0.0	3.0	4.0	5.0	5.0	0.0	14.0	11.0	4.0	5.0	5.0	5.0	19.0	16.0
2011	0.0	0.0	0.0	0.0	0.0	4.0	5.0	5.0	0.0	14.0	14.0	4.0	5.0	5.0	5.0	19.0	19.0
2012	0.0	0.0	0.0	0.0	0.0	4.0	5.0	5.0	0.0	14.0	14.0	4.0	5.0	5.0	5.0	19.0	19.0

* difference compared with the retirement scenario

The Faro-focused option at this point is based on costs and benefits related to rehabilitation of the Faro Mirrlees. Nonetheless, similar to the Whitehorse-related options, other “used” unit alternatives will be considered by Yukon Energy where they are cost competitive and offer other advantages. For example, with respect to the Faro plant, there exists a possible option to secure two EMD 645F4B 2.8 MW units for installation as an alternative to a Mirrlees rehabilitation with a comparable or better economic life and at a comparable total project cost. The used EMD units are newer than the Mirrlees, with better availability of parts and technical support, and are well suited to unattended and peaking operation. This is particularly relevant at Faro, where Yukon Energy maintains only a part time plant operator and the plant is not expected to be a main WAF baseload generation plant under any foreseeable load forecast scenario. These EMD units can make use of the same building as the Faro Mirrlees, as well as transformer and cooling systems. In any event, the capacity and pricing for Mirrlees rehabilitation and used EMD units are expected to be comparable, so for Resource Plan level assessment, the two are considered basically equivalent. Yukon Energy’s ultimate decision with respect to Mirrlees versus used EMDs at Faro will likely focus on practical considerations such as constraints related to building layout and the condition and terms for purchase of the used units.

As a result of the decision to proceed with a Faro-focused option in 2007 with Whitehorse Mirrlees Life Extension to follow in 2008, 2009 and 2010, Yukon Energy provides the following summary of the capacity shortfalls under the proposed near-term projects, as well as system shortfalls in the event the full Carmacks-Stewart interconnection does not proceed for 2009 (see section 4 of this update):

Table 2: Updated WAF Capacity Balance (MW) with Mirrlees Life Extension, Carmacks-Stewart Transmission Line and Aishihik 3rd Turbine under 4 load scenarios

Faro and Whitehorse Mirrlees Life Extension, Carmacks-Stewart T-Line and Aishihik 3rd Turbine

Table 2

Year	System Load Conditions			Capacity Driver	Resource Plan - Capacity Balance					Resulting WAF System Balance (Shortfall indicates req. for new diesel) (MW)	Shortfall Absent C-S Interconn. (MW)
	WAF Peak Load (MW)	LOLE Shortfall (MW)	N-1 Shortfall (MW)		Initial Surplus/ (shortfall) (MW)	Faro Mirrlees Rehabilitation - 2007 (MW)	Whitehorse Mirrlees Life Extension - 2008/09/10 (MW)	Carmacks-Stewart T-Line - 2009 (MW)	Aishihik 3rd Turbine - 2009 (MW)		
Base Case Load Forecast (also reflects Base Case with Minto)											
2005	56.4	6.5	0.3	N-1	0.3					0.3	0.3
2006	57.4	5.5	(0.7)	N-1	(0.7)					(0.7)	(0.7)
2007	58.5	0.2	(6.0)	N-1	(6.0)	5.0	4.2			3.2	3.2
2008	59.6	(0.9)	(7.1)	N-1	(7.1)	5.0	5.0			2.9	2.9
2009	60.6	(6.1)	(12.3)	N-1	(12.3)	5.0	10.0	6.0	0.0	8.7	2.7
2010	61.7	(7.2)	(13.4)	N-1	(13.4)	5.0	11.0	5.9	0.0	8.5	2.6
2011	62.9	(11.4)	(17.6)	N-1	(17.6)	5.0	14.0	5.8	0.0	7.2	1.4
2012	64.0	(12.5)	(18.7)	N-1	(18.7)	5.0	14.0	5.6	0.0	5.9	0.3
Low Sensitivity Load Forecast											
2005	56.4	6.5	0.3	N-1	0.3			**		0.3	0.3
2006	56.9	6.0	(0.2)	N-1	(0.2)			**		(0.2)	(0.2)
2007	57.4	1.3	(4.9)	N-1	(4.9)	5.0	4.2	**		4.3	4.3
2008	57.9	0.8	(5.4)	N-1	(5.4)	5.0	5.0	**		4.6	4.6
2009	58.4	(3.9)	(10.1)	N-1	(10.1)	5.0	10.0	**	0.0	4.9	4.9
2010	59.0	(4.5)	(10.7)	N-1	(10.7)	5.0	11.0	**	0.0	5.3	5.3
2011	59.5	(8.0)	(14.2)	N-1	(14.2)	5.0	14.0	**	0.0	4.8	4.8
2012	60.0	(8.5)	(14.7)	N-1	(14.7)	5.0	14.0	**	0.0	4.3	4.3
** - C-S not expected to be constructed under Low loads with no mines											
Base Case Load Forecast with 2 Mines (Minto & CC)											
2005	56.4	6.5	0.3	N-1	0.3					0.3	0.3
2006	57.4	5.5	(0.7)	N-1	(0.7)					(0.7)	(0.7)
2007	60.5	(1.8)	(6.0)	N-1	(6.0)	5.0	4.2			3.2	3.2
2008	68.6	(9.9)	(7.1)	LOLE	(9.9)	5.0	5.0			0.1	0.1
2009	69.6	(15.1)	(12.3)	LOLE	(15.1)	5.0	10.0	6.0	0.6	6.5	0.5
2010	70.7	(16.2)	(13.4)	LOLE	(16.2)	5.0	11.0	5.9	0.6	6.3	0.4
2011	71.9	(20.4)	(17.6)	LOLE	(20.4)	5.0	14.0	5.8	0.6	5.0	(0.8)
2012	73.0	(21.5)	(18.7)	LOLE	(21.5)	5.0	14.0	5.6	0.6	3.7	(1.9)
High Sensitivity Load Forecast (including Minto and CC)											
2005	56.4	6.5	0.3	N-1	0.3					0.3	0.3
2006	58.1	4.8	(1.4)	N-1	(1.4)					(1.4)	(1.4)
2007	61.8	(3.1)	(7.3)	N-1	(7.3)	5.0	4.2			1.9	1.9
2008	70.6	(11.9)	(9.1)	LOLE	(11.9)	5.0	5.0			(1.9)	(1.9)
2009	72.4	(17.9)	(15.1)	LOLE	(17.9)	5.0	10.0	6.0	0.6	3.7	(2.3)
2010	74.3	(19.8)	(17.0)	LOLE	(19.8)	5.0	11.0	5.9	0.6	2.7	(3.2)
2011	76.2	(24.7)	(21.9)	LOLE	(24.7)	5.0	14.0	5.8	0.6	0.7	(5.1)
2012	78.2	(26.7)	(23.9)	LOLE	(26.7)	5.0	14.0	5.6	0.6	(1.5)	(7.1)

Table 2 sets out the capacity requirements and Yukon Energy's updated proposals to meet these requirements with Faro Mirrlees Rehabilitation in 2007, Whitehorse Mirrlees Life Extensions in 2008, 2009, and 2010, Carmacks-Stewart Transmission Line in 2009 and Aishihik 3rd turbine in 2009. The resulting system balance is shown in the second column from the right of the sheet. The column to the far right describes the system in the event that the full interconnection of Carmacks-Stewart does not occur in 2009 as planned (see section 4.3 of this update).

- Under both the **Base Case Load Forecast** and the **Low Sensitivity Load Forecast** there is enough capacity through to 2012 with or without Carmacks-Stewart interconnection being completed (note the Low Load forecast includes no mines, so no Carmacks-Stewart project is expected under that scenario).
- Under the **Base Case Load Forecast with 2 Mines** there is adequate capacity to 2012 if Carmacks-Stewart is connected. In the event that Carmacks-Stewart is not interconnected shortfalls of 0.8 MW and 1.9 MW appear on the system in 2011 and 2012 respectively.
- Under the **High Sensitivity Load Forecast** there is adequate capacity in most years with Carmacks-Stewart except 2008 (1.9 MW shortfall prior to Carmacks-Stewart completion) and 2012

(1.5 MW shortfall). However without Carmacks-Stewart shortfalls begin in 2008 and rise to 7.1 MW by 2012.

4.0 CARMACKS-STEWART

Updates to the filed materials are provided below regarding:

- Project Proposal Submission to YESAB
- Update re: Minto and Carmacks Copper Mines
- Update re: Project Economics

PROJECT PROPOSAL SUBMISSION TO YESAB

Yukon Energy filed with the YESAB Executive Committee on October 13, 2006 the Project Proposal Submission for the Carmacks-Stewart/Minto Spur (CS/MS) Transmission Project lines and substations. Copies of the Project Proposal Submission were subsequently made available to the YUB and participants in the current Resource Plan proceeding, as well as posted on YEC's web site.

The Project Proposal Submission provides the full detailed description currently available for the CS/MS project (Chapter 5 of the Submission); this information will not be materially enhanced prior to completion of engineering dynamic system model and final design work and the YESAB Draft Screening Report.

The Project Proposal Submission includes the updated CS/MS project construction schedule and stages (Figures 5.4-1 and 5.4-2 from the Submission), which are attached in Schedule "A" to this update. Recognizing that delays in bringing this project into service will adversely affect the Minto mine and existing ratepayers, the schedule describes the anticipated timing of the additional activities required to achieve in-service of Stage 1 (CS from Carmacks to Pelly Crossing plus MS construction) as soon as possible during the 3rd quarter of 2008. Three points can be highlighted from this anticipated project schedule for Stage 1:

- **Permitting and Approvals:** The schedule anticipates completion of the YESAB review, and securing all needed permits and approvals for the full project, by mid-summer 2007. The YESAB Executive Committee assessment process includes a pre-screening adequacy review (which is currently underway), screening (with public comment), release and public comment on a Draft Screening Report, and the Final YESAB Report.
- **Final Design and Tendering:** In order to secure the earliest possible construction start date, Stage 1 construction preparation involving final design and then tendering is planned to begin early in 2007, prior to completion of the YESAB review process, for completion by mid-summer 2007 so that Stage 1 construction could start as soon in fall 2007 as all approvals are secured. The schedule reflects the need for the final YEC Board of Director's decision to be based on the receipt of a tendered contract price.
- **Separation of Design and Construction Contracts:** The proposed approach separates the design and construction contracts, and ensures that the final YEC decision in mid 2007 to proceed with Stage 1 construction is based on ability at that time to award a firm construction contract price to complete the project as designed.

The Project Proposal Submission sets out the preferred route selected for the 138 kV CS project and for the 35 kV MS project based on the route evaluation process carried out by Yukon Energy in consultation with the three Northern Tutchone First Nations (NTFNs) and others. This Submission also provides information and analysis addressing YESAB assessment requirements, including:

- detailed description of the project (preliminary design specifications as needed for assessing environmental and socio-economic effects, including project description for each phase of activities),
- review of public consultations to date (including consultations with the NTFNs pursuant to the MOU),
- description of existing environmental and socio-economic conditions without the project,
- the evaluation carried out of alternative routes, and
- the assessment of environmental and socio-economic effects after consideration of mitigation measures.

The selected CS route as described in the Project Proposal Submission is approximately 172 km (as compared with 180 km initially estimated), including 42 km from the proposed new Carmacks substation to McGregor Creek, 27 km from McGregor Creek to the proposed Minto Landing substation (part of MS project), 29.5 km from the Minto Landing substation to the proposed new Pelly Crossing substation, and (Stage 2) 74 km from the Pelly Crossing substation to the expanded Stewart Crossing substation. The selected MS route (which is part of Stage 1 activity as described in the Submission) is approximately 27 km (compared with about 30 km initially estimated) from the Minto Landing substation to the Minto mine substation; at the end of the Minto mine life it is assumed in the Submission that the MS facilities crossing the Yukon River and west of the river would be decommissioned and removed (retaining the Minto Landing substation and about 2 km of 35 kV line east of the river to serve local retail customers).

In summary, the Project Proposal Submission indicates that the specified CS/MS project is expected to cause no significant adverse effects on the biophysical environments or on the socio-economic components. This conclusion reflects careful routing of the transmission lines and the consideration of mitigation measures that would reduce or eliminate remaining potential adverse effects. Some residual adverse effects (e.g., the physical presence of the facilities result in an altered landscape and other changes as long as the facilities are in place, and improved access in some areas may create concerns about potential conflicts with existing resource uses) are anticipated, but are not expected to be significant based on criteria relevant to the YESAB assessment.

The Project Proposal Submission also indicates that positive environmental and socio-economic effects are likely to result from the CS/MS project as it improves the use of the existing WAF and MD grid power resources (including existing surplus hydro generation) and consequently displaces diesel generation emissions. Overall, the estimated magnitude of displaced diesel generation during operation of the Minto mine approximates 34 GW.h/yr, which exceeds current total utility diesel generation in Yukon (estimated at less than 25 GW.h/yr). It is anticipated that the project will create associated benefits for Yukon electric utility ratepayers, enhance the feasibility and economics of new mining developments, improve access to certain areas, and provide opportunities for local jobs and business activity during construction and subsequent periodic ROW clearing and maintenance.

The Project Proposal Submission reviews briefly the following alternatives to the proposed CS/MS project:

- **35 kV line to serve Minto mine:** This alternative, which was provided for in the LOI between Sherwood Copper and YEC, would provide a 35 kV line from Carmacks to the Minto mine and would by itself result in the community of Pelly Crossing continuing to rely on diesel generation unless YEC was to extend the 35 kV line from Minto Landing to Pelly Crossing (this would be seriously considered by YEC, pursuant to the MOU with the NTFNs). The 35 kV facilities from Carmacks to Minto landing and/or Pelly Crossing would not be of sufficient voltage to supply future potential mines such as the Carmacks Copper mine in the Williams Creek area west of McGregor Creek. This alternative would also not support future interconnection between the WAF and MD

power grids. Unless long-term expected service could justify its retention, the 35 kV line would be partially or fully decommissioned at the end of the Minto mine life with limited, if any, future long-term benefits to Yukoners.

- **Do not proceed with the project or any other option:** This alternative would include the following outcomes:
 - No grid power could be provided to future mine developments in this area, such as the Minto mine and the Carmacks Copper mine - this would adversely affect mine operating costs and economics, reducing royalties to government and potentially First Nations, and increasing diesel generation greenhouse gas emissions.
 - Pelly Crossing would continue to be served by diesel generation.
 - Interconnection of Yukon Energy's existing WAF and MD grids would not be realized, preventing this improvement to YEC's overall system reliability and efficiency.
 - Economic development opportunities that could be realized with the CS/MS project in the Carmacks/Stewart Crossing region with access to grid power may not be encouraged.

UPDATE RE: MINTO AND CARMACKS COPPER MINES

The Minto mine debt financing of \$85 million is now secured and construction is over one-third completed. The mine will begin operating in the 2nd quarter of 2007, using on-site diesel generation. Overall power needs are now expected to be materially higher than previously estimated, and the mine life is also expected to be longer.

Sherwood Copper has provided several update press releases on the Minto mine project (see Sherwood's website at <http://www.sherwoodcopper.com>) since the Resource Plan was submitted to the YUB in June. The updated information available to YEC includes the following:

- **Feasibility Study:** Results of the Feasibility Study were announced on July 10, 2006 (copy of presentation on Sherwood Copper web site) and updated August 28, 2006. Based on project optimization announced August 28, 2006 the expected mine life for current financing is 7.2 years (versus 10.6 years in the Feasibility Study). Mine operation is currently planned to begin in 2007 and continue into 2014, with shut down activities and related power loads continuing thereafter until 2018; however, three or more years of additional production are projected if additional high grade resources are confirmed by drilling currently being completed in Area 2 and, in addition, stockpiled low grade material will also be available for processing in the future should economics warrant after processing of higher grade material has been completed. The mine at full production (i.e., under the current plan, after the first 12 months of operation and continuing for the next 6.2 years) is expected to utilize 32.5 GW.h/yr of electrical energy (by comparison, earlier YEC analysis assumed about 24.5 GW.h/yr); the feasibility study and current plans assume operation of the mine using on-site diesel generation (although the Feasibility Study refers to the LOI with YEC and the opportunities for the Minto mine to secure cost savings of about \$4 million per year, net of capital contributions, by use of grid power by the end of 2008 with a net present value savings (discounted at 7.5% back to 2006) for Minto of about \$19 million).
- **Project financing:** Closure on October 26, 2006 on approximately C\$85 million senior and subordinated debt package as announced October 17, 2006 to complete the funding required for the Minto mine, and commencement to draw against the facilities to complete construction of the high grade Minto copper:gold mine – the mine is more than one-third built and is scheduled to begin production in the second quarter of 2007, producing an average of 41 million pounds of copper and 17,295oz of gold per year. The debt package is comprised of a C\$65 million project loan facility (PLF) and a \$20 million subordinated debt facility (SDF). The PLF carries an interest rate of LIBOR plus 2.25% and is repayable over two years commencing November 30, 2007. The SDF carries an interest rate of LIBOR plus 3% and is repayable over one year commencing November 30, 2009.

- **Other recent announcements:** On November 1 encouraging results were announced from metallurgical test work undertaken post-feasibility study. On November 2, results were announced for a further 15 drill holes from Area 2; these results continue to delineate high grade copper-gold mineralization over an area of up to 350m by 260m and well outside the original magnetic anomaly targeted, and this mineralization has the potential to lead to an extended operating life of the Minto mine at similar grades to those planned for the first six years of operation.

Yukon Energy and Sherwood Copper continue to negotiate the PPA pursuant to the LOI, focusing on assumed development of the Stage 1 CS/MS project to Pelly Crossing at 138 kV from Carmacks to Pelly Crossing and including consideration of YEC's potential use (after the project is in-service) of the 6.4 MW surplus on-site diesel generation. Minto will be pay power rates as approved by the YUB (and that fully meet the requirements of OIC 1995/90 that such rates ensure that major industrial customers as a class pay at least full cost of service determined by treating the whole of Yukon as a single rate zone)³, be fully responsible for the costs of the MS 35 kV line, and undertake obligations that reduce YEC's risks with regard to costs for the 138 kV line. Minto will provide security with regard to its obligations in this regard. A copy of the PPA will be filed with the YUB as soon as it is concluded.

Western Copper has re-confirmed its interest in reaching an agreement with Yukon Energy for the supply of grid power to their Carmacks Copper project. Western Copper notes that it has made formal applications to both the Yukon Government and the YESAB for project approval. Until such time as it has received permits for this project from the appropriate authorities (which YEC understands is not currently expected to occur until sometime in the first half of 2007 at the earliest), Western Copper has stated that it is not prepared to enter into any formal commitment regarding a PPA. Yukon Energy has informed Western Copper that, subsequent to securing the needed formal PPA commitment, YEC will require potentially 6 to 12 months or more to prepare a YESAB Project Proposal, complete YESAB assessment of the 138 kV spur line (11 km across Yukon River from McGregor Creek to the mine site), and secure approvals as needed from governments; thereafter, construction timing could also be contingent on seasonal conditions.

UPDATE RE: PROJECT ECONOMICS

Based on the update information, Yukon Energy is proposing to proceed with the 138 kV CS project with development to occur in two stages:

- Stage 1 will proceed first with the 138 kV CS development to Pelly Crossing (and the 35 kV MS spur line), and will proceed only after a signed PPA with Minto.
- Stage 2 will proceed thereafter only when conditions will permit its development without any adverse impact on ratepayers; in this regard, firm commitment to connect the Carmacks Copper mine is currently assumed to be a precondition for Stage 2 development.

Within the above context, Yukon Energy is proposing to proceed with Stage 1 without any YTG funding commitment beyond the \$0.45 million already committed for initial planning costs. Further, based on the update, YEC concludes that it will be feasible to proceed to develop the desired 138 kV long-term infrastructure without adverse effects on Yukon ratepayers, and therefore there is no need to consider

³ See response to UCG-YEC-2-2 which reviews OIC 1995/90 and its application to industrial rates (including review of past experience and current status); the OIC is provided therein as Attachment 1. The relevant firm rate for major industrial customers (Rate Schedule 39) was developed in the 1996/97 GRA when the Faro mine was the sole customer in that class, reflects cost of service prepared for Yukon (YEC and YECL) at that time, and remains as an interim rate since the Faro mine last closed in 1998, pursuant to Board Order 1998-5. The current Rate 39 includes a Demand charge of \$18.60/kVA per month (Demand based on peak Billing Demand in last 12 months, excluding April to September) and an Energy charge of \$.05301 per kW.h; Rider F is applicable to Rate 39 but Rider J is not applicable to Rate 39. Assuming an annual load factor of about 84% for the Minto mine, the current Rate Schedule 39 would result in effect in an average rate of 8.334 cents per kW.h plus the current Rider F (expected to approximate about 1 cent per kW.h in near term).

further the option of developing only 35 kV facilities which would fail to contribute to development of desired long-term transmission infrastructure in Yukon.

Based on the above updates and other related current considerations, the CS project economics is affected by the following:

- Adjusted capital costs (for selected route and for review of construction market conditions).
- Adjusted present value of ratepayer benefits (to reflect Minto mine load changes), more detailed consideration of the potential rate for use of the current system resources, and consideration of YEC costs incurred regarding the Flexible Term Note (now owned by YDC)⁴ due to added WAF loads.
- Assumed no-cost capital contribution of up to \$5 million to be provided by YDC towards Stage 1 development in recognition of the added interest and principal payments expected to be received under the Flexible Term Note (FTN) due to increased YEC WAF sales as a result of the CS project.

The PPA is currently being negotiated with Minto; accordingly, no update is provided and no consideration is given to specific PPA terms in this update.

No updated analysis is developed with regard to the Carmacks Copper mine.

Capital Costs

The updated capital cost (2005\$)⁵ for the 138 kV Carmacks-Stewart Transmission Project based on the route as selected (and the adjusted line distances) in the YESAB Project Proposal Submission and the initial costing assumptions per km is \$30.2 million (including \$3.0 million for planning activities), with \$17.2 million for Stage 1 (Carmacks to Pelly Crossing) and \$13.0 million for Stage 2 (Pelly Crossing to Stewart Crossing).⁶

Yukon Energy has reviewed potential escalation of the line-related capital costs due to tight labour market conditions in Western Canada and other factors (e.g., raw material cost increases), based on review of recent Yukon Energy cost experience and also discussions in August with engineering consulting firms leading to securing expressions of interest to submit proposals on the upcoming RFP for engineering services for this project.⁷ Based on this review, capital cost estimates (2005\$) for evaluating the CS project are considering a range of potential overall increases of about 17% and 34%, e.g., total CS project costs ranging from \$30.2 million to \$40.6 million, with mid-point of \$35.4 million (Stage 1 costs ranging from \$17.2 million to \$23.1 million, with mid-point of \$20.2 million)⁸.

⁴ On March 30, 2005 Yukon Development Corporation (YDC) purchased this Note from the Government of Canada for \$11.3 million; the purchase price reflected the Note's reduced value (face value of \$28.278 million at the time of the acquisition) due to there being no industrial customers on WAF. The terms of the Note with YEC, which remain unchanged, provide for payments of interest and principal to be deferred and abated, respectively, if YEC's power sales on the WAF distribution system are less than specified amounts. The Note bears interest at 7%, and requires principal payments of up to \$1 million, payable in annual instalments; after adjusting for abated interest, the effective interest rate on the Note for 2005 was 2.90% (2004-2.86%).

⁵ All costs are stated in 2005\$. Assuming in-service in 3rd quarter 2008, the in-service costs reflecting inflation and interest during construction would be higher (likely by about 10% to 15% under the current project schedule) than the stated 2005\$.

⁶ Based on the LOI and YEC requirements, capital costs for the 35 kV Minto Spur are assumed to be assigned to the Minto mine, and thus are not considered in the assessment of YEC's economics. The updated capital cost (2005\$) for the 35 kV Minto Spur based on the route as selected (and the adjusted line distances) in the YESAB Project Proposal Submission and other costing assumptions is \$2.6 million; these estimates include provision for substation facilities at Minto Landing and the Minto mine site, added costs for costs for the segment crossing the Yukon River, and provision for planning and permitting costs.

⁷ Yukon Energy has now received expressions of interest from ten engineering consulting firms; a short list of five firms has been selected.

⁸ The equivalent mid-point capital cost estimate (\$2005) for the Minto Spur is \$3.4 million – the higher percent escalation reflects a higher escalation assumed for 35 kV line costs as well as weighting of line costs relative to other costs for this project.

Ratepayer Benefits

The updated (2005\$) present value net operating income earned by YEC from supplying the Minto mine (ratepayer benefits) is estimated at \$12.5 million (compared with \$11.6 million in the earlier estimates) based on the following assumptions (as well as 7.5%/year nominal discount rate):

- Updated Minto mine loads (32.5 GWh/yr versus 24.5 GW.h/yr) and expected producing mine life served by YEC from October 2008 until about May 2017 (8.5 out of 10 years versus 6 out of slightly over 7 years); minimal loads in following 3 to 4 shut down years before full decommissioning are not considered.
- Assumed rate of 9.3 cents per kWh, without any escalation, for mine charges re: system use other than MS spur and CS line capital costs (this rate in effect reflects current interim Rate 39 plus assumed Rider F at 1 cent per kWh).
- Deduction of an estimated 1.7 cents per kWh to provide for incremental YEC interest costs associated with added FTN interest (due to terms of the Note and current level of WAF sales resulting in interest rate well below the 7% maximum rate in the Note)⁹. The present value (\$2005) of these added costs is estimated at \$2.8 million for interest only; higher principal payments will also occur (equal to about 50% of the added interest payments).

Ratepayer benefits present value (2005\$) remain at \$2.3 million for Pelly Crossing and \$13.7 million for Carmacks Copper if it starts operating in 2008, less provision for added Canada Flexible Term Note interest costs to YEC of (present value) \$0.2 million for Pelly Crossing sales and about \$2.0 million for Carmacks Copper mine sales (which would result in maximum Note payments coming into force). Similarly, no adjustments are made at this time to estimated ratepayer benefits of connection of the two grids (about \$10 million present value).

In connection with the FTN payment added costs due to the CS project new loads, as stated earlier, it is assumed that YDC will provide no cost capital to YEC for the project equal to \$5 million towards Stage 1 development in recognition of the added interest and principal payments expected to be received by YDC.

Overall Summary Assessment

Overall assessment reviews both the expected YEC capital costs and the associated estimates of ratepayer benefits in order to derive a net present value benefit or cost (2005\$). The update examines these net benefits without considering the present value contributions that will have to be made by the mines under the PPAs.

As indicated in the initial Resource Plan filing, full development of the CS project with both mines would provide positive net present value benefits. The updated estimate of these positive net benefits without any new YTG funding is \$6 million (2005\$), reflecting the extent to which net ratepayer benefits of \$36.3 million exceed net capital costs of \$29.95 million, based on the following:

- **Total YEC net capital costs, using update mid-point estimates, of \$29.95 million** (\$35.4 million mid-point cost estimate, less \$0.45 million committed to date by YTG and \$5.0 million assumed no cost capital provided by YDC to reflect added income from FTN payments. For the purpose of this assessment, no net capital contribution is assumed from the Minto or Carmacks Copper mines (this is assumed to avoid presumption of any specific final PPA approach).

⁹ The Note adjusts interest and principal payments each year between zero and maximum levels for WAF sales by YEC between 200 and 310 GWh/year. The maximum interest is 7% per year and maximum principal payment is \$1.0 million per year. The Note's balance as at March 31, 2005 was \$28.3 million, and the interest rate paid in 2005 was 2.9% (i.e., WAF sales approximated 245.6 GWh/yr in 2005).

- **Total YEC net ratepayer benefits of \$36.3 million** (\$14.6 million from Minto mine and Pelly Crossing sales, and \$11.7 million from Carmacks Copper sales, net of FTN added costs; also \$10 million interconnection benefits).

Positive net benefits of about \$1 million remain if the upper end of the capital cost range noted earlier is assumed for the project.

Stage 1 development alone (Carmacks to Pelly Crossing) with the Minto mine but without the Carmacks Copper mine would provide overall present value benefits (2005\$) within \$0.2 million of YEC net capital costs, prior to considering any net contribution by the Minto mine above the rate assumed in this analysis (9.3 cents per kWh without escalation):

- **Total YEC net capital costs, using update mid-point estimates, of \$14.75 million** (\$20.2 million mid-point cost estimate, less \$0.45 million committed to date by YTG and \$5.0 million assumed no cost capital provided by YDC to reflect added FTN payments expected to be received. For the purpose of this assessment, no net capital contribution is assumed from the Minto mine (this is assumed to avoid presumption of any specific final PPA approach).
- **Total YEC net ratepayer benefits of \$14.6 million** (\$14.6 million from Minto mine and Pelly Crossing sales, net of FTN added costs).

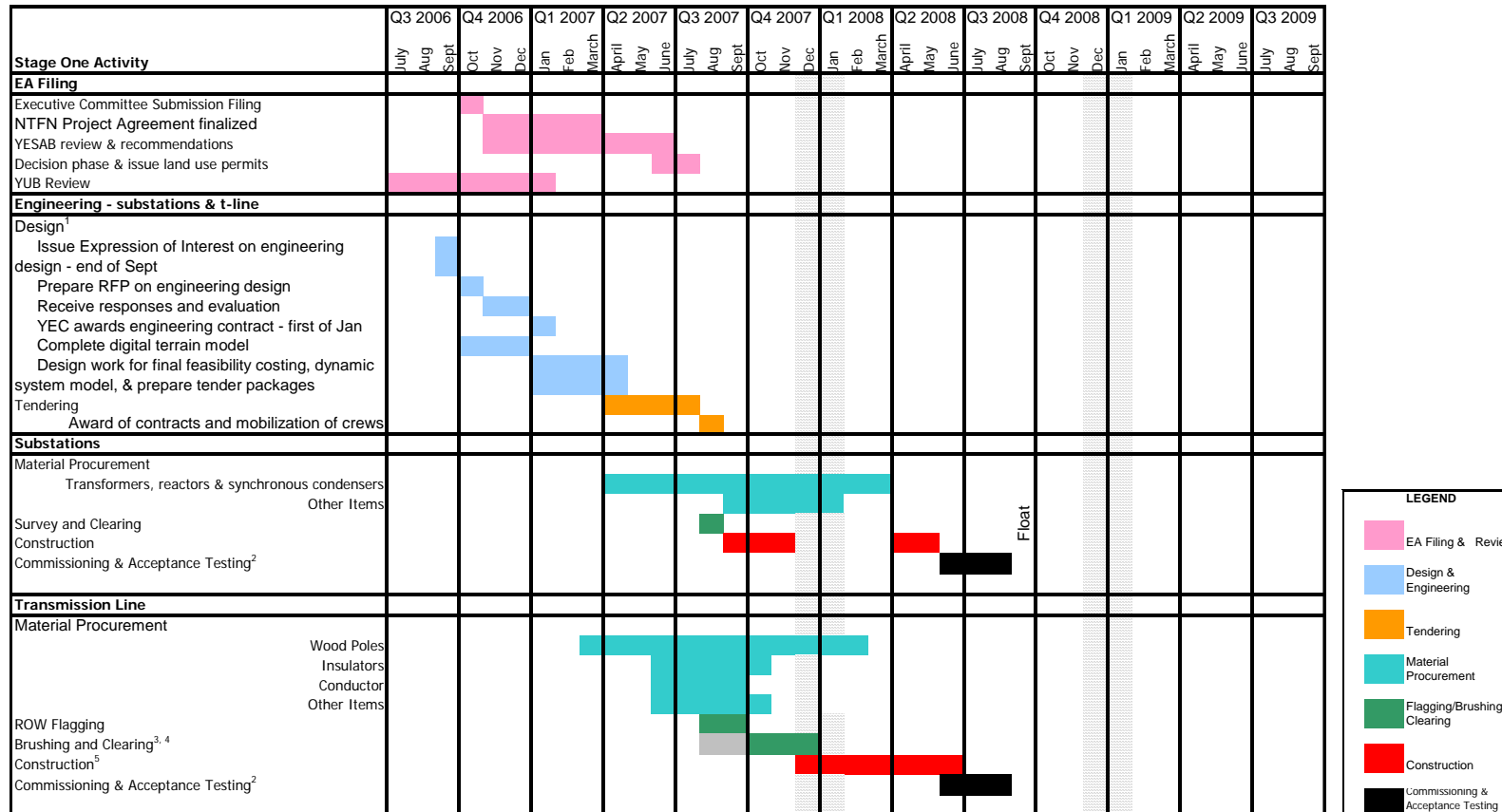
In the case of the Stage 1 development scenario as assumed above, net costs would approximate \$3.0 million (2005\$) if the upper end of the capital cost range noted earlier is assumed for the project, prior to considering any PPA contribution by the Minto mine.

YEC and Minto are currently negotiating the PPA which is expected, among other matters, to involve Minto undertaking present value contributions that will have to be made with regard to the CS project costs as well as obligations that reduce YEC's Stage 1 risks with regard to costs for the 138 kV line. As noted earlier, Sherwood Copper's Feasibility Study has confirmed the material cost savings (about \$4 million per year) that Minto is expected to receive from use of grid power to displace ongoing on-site diesel generation with a net present value savings (discounted at 7.5% back to 2006) for Minto of about \$19 million. Accordingly, YEC is very hopeful that the PAP will be concluded soon, at which time it will be filed with the YUB.

SCHEDULE "A": CARMACKS-STEWART/MINTO SPUR TRANSMISSION PROJECT ANTICIPATED SCHEDULE

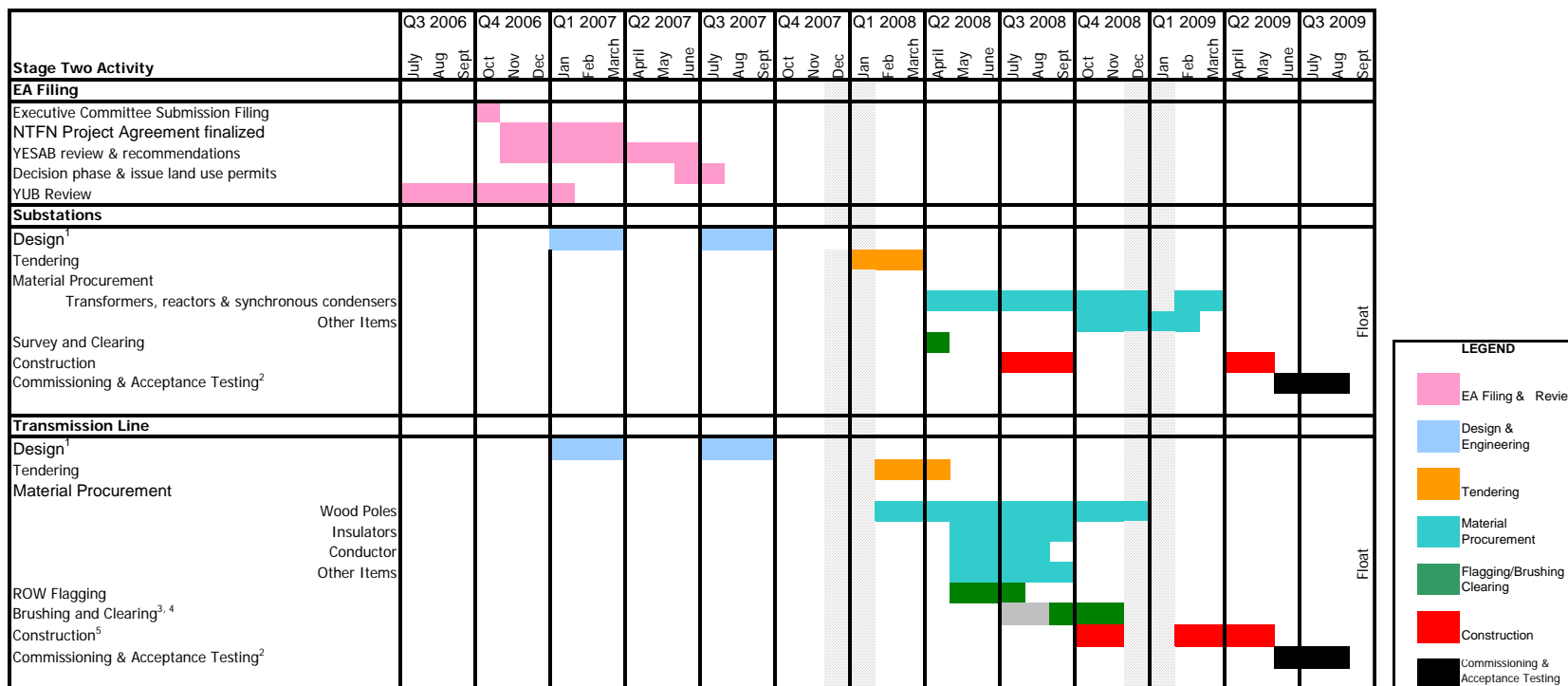
Figures 5.4-1 and 5.4-2 from Yukon Energy's Project Proposal Submission to YESAB Executive Committee, September 2006. Filed October 13, 2006.

**Figure 5.4-1
Anticipated Project Schedule for Stage 1**



¹ Preliminary design work for Stages 1 and 2 is anticipated to be done in Q1 2007. If YTG funding for Stage 2 does not materialize, Stage 2 final engineering and design will face material delays. ² Commissioning is done by the contractor; Acceptance Testing is done by Yukon Energy - both take approximately 6 weeks each. ³ The grey part of the clearing schedule could accommodate advance permits for cutting fuel wood and merchantable timber. Once this time frame has past the ROW is brushed and cleared to the standard required for the transmission line. It is important that any sections of the corridor used for fuel wood or timber harvesting be surveyed and flagged prior to issuing any permits. ⁴ The months of May and June are not used for brushing and clearing of the ROW to reduce the impact on nesting birds (Yukon Energy, 2005) and spring break-up. ⁵ Line construction must occur after brushing and clearing is well in hand. Line construction over the small number of wetland sites will occur primarily in winter to minimize the impact on wetlands and permafrost soils.

**Figure 5.4-2
Anticipated Project Schedule for Stage 2**



¹ It is anticipated that Preliminary design will occur for Stage 2 in Q1 of 2007, with final design work occurring in Q3 2007 depending on funding from YTG. ² Commissioning is done by the contractor; Acceptance Testing is done by Yukon Energy - both take approximately 6 weeks each. ³ The grey part of the clearing schedule could accommodate advance permits for cutting fuel wood and merchantable timber. Once this time frame has past the ROW is brushed and cleared to the standard required for the transmission line. It is important that any sections of the corridor used for fuel wood or timber harvesting be surveyed and flagged prior to issuing any permits. ⁴ The months of May and June are not used for brushing and clearing of the ROW to reduce the impact on nesting birds (Yukon Energy, 2005) and spring break-up. ⁵ Line construction must occur after brushing and clearing is well in hand. Line construction will occur primarily in winter to minimize the impact on wetlands and permafrost soils.